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CREDIT DEVICES AND THE QUANTITY THEORY.

IN the course of the last two decades writers on money have been obliged to allow increasing importance to the evolution of the check and credit deposit system. Contemporaneously with improvements in modes of transportation and with high development in all sorts of commercial methods, a complete revolution has been effected in the character of the means of exchanging goods. This revolution has been so thorough and has at the same time possessed so many picturesque features that it has not failed to command its due share of attention. Nor has it been without proportionate effect upon the theory of prices. It has strongly called attention to some of the ordinarily neglected factors in the making of prices and has necessitated a restatement of the older quantity theory of money.

In the course of the recently renewed discussion upon the price question, adherents of the quantity theory have in general followed two main lines of argument. They contend either, (1) that as bank transactions are not money and cancel one another, they have no effect upon the real influence of money in regulating prices;¹ or (2) that bank deposits may possibly be counted

¹ As an example of this we may quote from President F. A. Walker as follows: "It would not in the least matter for the purpose of deciding the question, what determines the value of money, if the cancellation of indebtedness in the wholesale trade were complete . . . if every claim made by every bank every afternoon at the clearing house were offset by an equal and incontestable demand. The statistics of banking and clearing-house transactions would be irrelevant and impertinent to the issue. . . . In the field of wages and of retail trade money gets that room to operate which

as money but that they are of much less consequence than is commonly supposed and are used to a decreasing extent.¹

It is the present intention to examine the two arguments just outlined and to consider especially the estimates and calculations upon which the second contention rests.

In attempting to get at some provisional conclusions regarding the relative importance of credit deposits and cash in actual business, at the present time, or the part played by each today, as compared with some former date, we are obliged to rely upon two principal sorts of evidence, (1) the amount of exchanging to be done and (2) the machinery at hand for doing it. On the accuracy of estimates upon the first head, based on statistics of wealth, etc., no reliance whatever can be placed. On the other hand, more exact information regarding our means of exchange is obtainable. In general they may of course be said to consist of two sorts, credit devices and money. And, if it could be ascertained to how great an amount goods are annually exchanged by means of credit devices and how great is the actual total of goods exchanged, we could safely draw inferences regarding the amount of work performed by money. Unfortunately, it is impossible to obtain even an approximate estimate of the total amount of exchanges annually performed, and it is consequently quite beyond our ability to find out the proportion of exchanges performed by money. If, however, any evidence can be adduced to show that at a given date there was more exchanging to be done than at some date preceding, while on the other hand a less amount of credit instruments was used, it will be no more than a fair conclusion that, at the later date, a greater proportion of the exchanges was performed through the agency of actual money. Efforts to minimize the importance of credit instruments have consequently followed pretty closely this latter method of argument while, in a few instances, purely *a priori* enables it to determine prices just as truly as if banks and clearing houses did not exist."— *Quarterly Journal of Economics*, October 1893, p. 73.

¹ This point of view may be found in an extreme form in a paper on "Money and Credit Paper in the Modern Market," by WILLARD FISHER.—*Journal of Political Economy*, September 1895, pp. 391-413.

attempts to estimate the amount of work performed by money as compared with that done by checks, drafts, etc., have been made. These may be briefly referred to later on; at this point it is desired to concentrate attention upon sources of information upon credit devices, and to insist upon the necessity for care in the use of the statistics relating to the credit side of the question before us, in view of the undue stress we are forced to lay upon them, owing to the absence of knowledge concerning the extent to which money is used and the inexactness of information bearing upon the total of our annual exchanges of goods.

In general we may group our evidence on the use of credit deposits in two main categories: (*a*) the clearing-house returns, (*b*) the analyses of their receipts made by the banks at the request of the comptroller of the currency. This last classification may be subdivided into (1) general experiments upon aggregate receipts, of which we have had three in the United States, and (2) particular receipts of the banks from special industrial classes. Of this sort we have had but one.

Clearing-house statistics, as ordinarily discussed, are treated from one of three principal points of view. They are used either (*a*) as a gauge of the volume of the country's business, or (*b*) as a rough estimate of the amount of credit exchanges annually performed, or (*c*) as an index of the percentage of cash which is required to carry out a certain volume of business transactions. Any one of these various uses may, with proper reservations, be legitimately made of the clearing-house figures and although the results obtained will necessarily be approximate only, they will not be untrustworthy. Clearing-house returns are records of business operations actually performed and any use, consonant with this character, which may be made of them will be admitted. But there is a mode of reasoning which regards statistics of clearing-house operations as indicative of the extent to which credit devices are used and so as analogous to statistics of the amount of money in use. Certain writers have reduced clearings to per capita terms and have endeavored to compare the figures in this form with the per capita statistics of our monetary

circulation, for the purpose of showing changes in the relative use of cash and credit. But such a comparison is inadmissible, as will appear from a consideration of the dissimilar natures of the two things which are compared. Money is simply a mechanism for effecting exchanges, whereas clearings are records of exchanges performed. The disparate nature of the two things is clear. It would be quite as reasonable to compare a plough with the harvested wheat crop or a locomotive with the number of miles traveled as to try to draw analogies between money and clearings.¹

¹ It would be a much nearer approach to fairness, in discussing the relative extent to which cash and credit are used, to compare money in circulation with credit deposits. The figures for deposits are necessarily incomplete. Even so, however, deposits show a much more rapid growth than either money or population.

	Deposits in National Banks (Millions)	Deposits in State Banks (Millions)	Money in Circula- tion (Millions)	Population (Millions)
1864	122.2	.....	.....	....
1865	549.1	.....	.....	....
1866	598.0	.....	.....	....
1867	568.2	.....	.....	....
1868	603.1	.....	.....	....
1869	523.0	.....	.....	....
1870	512.8	.....	.....	....
1871	631.4	.....	.....	....
1872	628.9	.....	738.3	40.6
1873	640.0	110.8	751.8	41.7
1874	683.8	137.6	776.0	42.8
1875	679.4	165.9	754.1	43.9
1876	666.2	157.9	727.6	45.1
1877	630.4	226.7	722.3	46.4
1878	668.4	142.8	729.1	47.6
1879	736.9	167.0	818.6	48.9
1880	887.9	208.8	973.4	50.2
1881	1083.1	261.4	1114.2	51.3
1882	1134.9	281.8	1174.3	52.5
1883	1063.6	335.0	1230.3	53.7
1884	993.0	325.4	1243.9	54.9
1885	1116.7	344.3	1292.6	56.2
1886	1189.5	342.9	1252.7	57.4
1887	1274.7	446.6	1317.5	58.7
1888	1406.5	410.0	1372.2	60.0
1889	1522.0	507.1	1380.4	61.3
1890	1594.2	553.1	1429.2	62.6
1891	1608.6	556.6	1497.4	64.0
1892	1779.3	648.5	1601.3	65.4
1893	1465.4	706.9	1596.7	66.8
1894	1742.1	658.1	1660.8	68.3
1895	1715.2	712.4	1602.0	69.9

This distinction, although apparently simple, is fundamental. If it be distinctly understood that clearings represent merely accomplished business transactions, there will be no danger of our considering changes in the volume of clearings equivalent to changes in the proportion in which credit devices are used relatively to money, any more than we should take a decrease in railway freight hauled during a given year, as compared with former years, to indicate relative changes in modes of transportation. It would not be inferred, for instance, from a decrease in the amount of railway freight that more goods were shipped by water. That might be so, or it might not. Water traffic might remain the same in absolute amount, or it might decrease coincidentally with railway traffic. But if the same causes which were operating to decrease railway traffic were also tending to decrease the volume of water freight, it would be more reasonable to infer a decrease in the volume of traffic by water from an observed decrease in the volume of railway freight than to suppose that what was lost by the one means of transportation was gained by the other. So, in the case of clearings, it will be impossible to infer from a falling off in aggregate clearing-house operations that business is being more and more performed by money unless it can be shown that, coincident with this falling off, there has likewise been observed from independent data a corresponding increase in the use of money; or unless it can be shown that transactions have remained the same, or have increased, in amount. Unless one of these two things can be clearly proved, inferences based simply upon variations in clearing-house returns will be invalid. And if it can be shown that a decrease in clearing-house returns has been the reflection of a similar falling off in aggregate business operations, it will be but fair to suppose, in default of other evidence, that the latter has been the cause of the former rather than that an alteration in habits of exchange has suddenly come about.

But it may be maintained that, granting all this, there are yet many circumstances which would lead us to expect that on the supposition of a constant or increasing use of credit

instruments, clearings, which are the record of business transactions, would have increased much more rapidly than can, under the most favorable suppositions, be shown to have been the case. In support of this, the most obvious argument to be urged is plainly the increase in wealth and the supposed consequent increase in transactions which, it is said, are not balanced by a corresponding increase in clearings. But, admitting that an increase in exchanging has taken place, there are still many reasons why the volume of clearing-house transactions should not increase in proportion. Among these, should especially be mentioned the fact that the present prices of many staples are much lower than those of a few years ago so that a less quantity of money or credit is required to exchange a given amount of goods. Also the mechanism of exchange is less complicated than formerly and fewer operations are required in transferring values from producer to consumer. Without, however, stopping to estimate the relative degrees of importance which should be allowed to these several elements in the problem of comparing clearings for different dates, we may, for the present, take up the clearing-house reports as we find them.

The returns may broadly be divided into two classes: (*a*) clearings for reserve cities, and (*b*) clearings for cities other than reserve cities. In the first category two main divisions may be noted, (1) New York clearings, and (2) clearings for reserve cities outside New York. The basis for making the divisions just indicated is tolerably apparent. The reserve cities being places of large commercial and industrial importance, will not only show a larger volume of clearings but also a less regular increase in the amount of business transacted, since they will be peculiarly subject to variations of a local and temporary nature. Speculative operations take their start and reach their climax in the financial centers. Industrial depression and contraction in credit are more intensely felt in the cities than in the smaller towns. Consequently, for the purpose of indicating progress in clearing-house operations, more reliance can be placed upon the statistics for the less important places than for those where the

course of business, though fuller, is also more liable to perturbations of a temporary character.

But here again a difficulty, of considerable importance in comparing clearing-house figures for different dates, is met with. During recent years, clearing-house organizations have been rapidly increasing in numbers. This increase has necessarily led to a rise in the volume of recorded transactions so that a conclusion based solely upon the aggregate clearings outside the central reserve cities would be deceptive as a guide to the rate at which credit transactions are being increased. We should rather select a large number of representative towns for which the returns are given, over a suitable term of years, and study them. Such a method is, however, rendered impracticable by the character of the returns. These are defective for two reasons: (1) they do not extend back far enough to afford an adequate period for the purpose of our comparison and (2) in some parts of the country clearing-house organizations are not yet sufficiently numerous to furnish a satisfactory guide to the progress made in the use of credit devices. It is, therefore, more to the purpose to direct our attention to some one representative point and attempt, by a correction of the reported figures, to reach some results more trustworthy than those based upon the uncorrected statistics.

It is a familiar fact that the New York clearing-house operations far surpass in amount those of any other single city in the entire clearing-house system. This is due to the circumstance that the system originated in New York and that that city, for a long time, possessed so great a preponderance as a financial center that its operations completely overshadowed those of other places. Even now, its transactions are considerably greater than those of all other cities united. This fact has led to many incorrect generalizations based upon the apparent movements in the New York clearing-house returns. It is sometimes argued that, whereas the returns show a vastly-increased volume of business as compared with the early years of the organization, it is a fair inference that the use of credit devices has increased to

a corresponding extent; while on the other hand, the fact that at several dates the volume of business has been higher than it is at present, is cited to show that the work of exchange is being more and more performed by money.

If we consider the New York clearing-house returns for a period of recent years, it will be seen that the variations in the figures correspond very exactly to the known alterations in the general character of business.¹ This correspondence, indeed, is no more than must be expected from the fact that the figures in question are simply records of business transactions, and should go to show that variations in the clearings cannot in any exact sense be taken as a measure of changes in the use of credit devices.

Again, it would be impossible to use the clearing-house figures as evidence pointing to a change such as that just indicated, if they contained an element peculiarly liable to fluctuation and disconnected with actual business transactions. Such an element is to be found in the operations of the stock exchange, which are always effected by means of checks, and which up to 1892, when occurred the separate organization of the New York stock-exchange clearing house, have been included in the total of bank clearings. The importance of eliminating the stock-clearings in such a discussion as the present one is shown by the fact that in 1892, soon after their separation, they varied from \$60,000,000 to \$84,000,000 per day, a rate of from \$18,000,000,000 to \$25,000,000,000 per year. In 1881, the year of the highest returns since the organization of the New

¹ The following is a table of New York clearing-house returns, according to the comptroller of the currency (see *Report* 1895, p. 485):

Year	Total Clearings	Year	Total Clearings
1895.....	\$28,264,379,126	1886.....	33,374,682,216
1894.....	24,230,145,368	1885.....	25,250,791,440
1893.....	34,421,380,870	1884.....	34,092,037,338
1892.....	36,279,905,236	1883.....	40,293,165,250
1891.....	34,053,698,770	1882.....	46,552,846,161
1890.....	37,660,686,572	1881.....	48,565,818,212
1889.....	34,796,465,529	1880.....	37,182,128,621
1888.....	30,863,686,609	1879.....	25,178,770,691
1887.....	34,872,848,786	1878.....	22,508,438,442

York clearing house, stock-clearings were estimated at \$20,493,-766,007.¹ What has been said goes to show that the value of conclusions based upon the unmodified clearing-house statistics, is extremely small. Not only does the elimination of the stock-clearings strongly emphasize the increase of the clearing-house figures from year to year, but it, in many cases, quite changes their character as may be seen from the table.

The elimination of the stock-clearings will also alter, in another way, the conclusions to be drawn from the figures. If we examine the percentages of cash passing in settlement of the annual volumes of clearings, it will be noted that relatively small percentages commonly accompany relatively large volumes of transactions and vice versa. This peculiarity is not to be explained by the commonly received statement that in larger volumes of transactions each piece of credit paper is more likely to be canceled by some other piece, so that less cash

¹ The importance of eliminating the stock-clearings will be seen by the following table, in which the clearings arising from stock transactions are estimated at $2\frac{1}{2}$ times the stock sales; $2\frac{1}{2}$ being the estimated number of checks used for each transaction (see *Commercial and Financial Chronicle*, 1892; p. 51).

	$2\frac{1}{2}$ Times Stock Sales	Clearings Less $2\frac{1}{2}$ Times Stock Sales	Per cent. of Cash to Clearing- House Trans- actions used in Balancing
1895.....	.....	.....	6.71
1894.....	.....	.....	6.50
1893.....	.....	.....	4.90
1892.....	.....	.....	5.10
1891.....	\$ 9,530,618,547	\$24,218,703,665	4.60
1890.....	9,944,160,482	27,514,447,127	4.70
1889.....	10,148,079,727	25,747,025,178	5.00
1888.....	8,848,797,857	22,251,229,664	5.10
1887.....	11,271,947,247	22,202,609,021	4.50
1886.....	14,714,155,500	18,962,674,112	4.50
1885.....	13,699,649,600	14,452,551,736	5.10
1884.....	14,848,750,000	16,137,121,170	4.50
1883.....	15,652,024,902	21,782,275,970	3.90
1882.....	19,223,633,590	27,693,321,441	3.40
1881.....	20,493,766,007	28,883,116,876	3.50
1880.....	17,047,715,195	21,566,733,088	4.10
1879.....	10,341,383,925	18,894,089,904	5.60
1878.....	5,318,173,952	14,540,497,355	5.80

is required to balance. That this is not the case may be seen by the fact that, in many instances, both the capital and number of banks involved remain substantially the same. Indeed, since practically all the banks in New York city clear either directly or indirectly, it may be assumed that the normal extent to which checks will be canceled by one another, will be about as great at one date as at another. It is, therefore, necessary to look elsewhere for an explanation of the changes in the percentages just spoken of. It will be seen from a glance at these figures that the variations show little regularity and are often the opposite in direction of what we should expect. This suggests the irregular entrance into the returns at different dates of large aggregates of credit paper which offset each other. If such were really the case, the variations in the percentages would be easily explainable. This does actually take place in the case of the speculative stock transactions just discussed. It is admitted that in all speculative operations business is done exclusively by check; and when it is observed that the largest volumes of stock transactions coincide in point of time with the lowest percentages of cash, it is clear that the explanation is adequate. On this basis, we can easily understand why the percentage of cash to aggregate clearings has been increasing since 1892, the year in which stock-exchange transactions were dissociated from bank clearings, and it becomes plain that this increase cannot be taken as an indication of a rise in the amount of cash required to carry on the transactions independent of stock-exchange operations after 1892.

It seems, then, that the New York clearing-house figures, as usually published for different dates, cannot, without serious modification, be compared with one another, even for the purpose of drawing conclusions regarding the volume of business transacted by means of credit devices. Beside the fact that the clearing-house statistics, if unmodified, are misleading, there are also additional reasons why these figures cannot be considered an adequate measure of the growth of the credit transactions of the country. These reasons depend upon the circumstance that dur

ing the past few years New York has been rapidly losing its financial preponderance, owing to the transfer of deposits to other central reserve cities. National clearings, too, have been partially removed from New York, and the net result has been to prevent the New York clearings from growing in importance as fast as they would otherwise have done. This movement of clearings away from New York as well as the organization and growth of new clearing-house associations make it necessary to allow considerable importance to the clearings for the country at large.¹ A reading of the figures for the aggregate clearings of the country shows the upward tendency of the whole volume of transactions. This tendency is strongly emphasized, if the figures for New York stock sales be excluded as they should be. Relieved of the fluctuating element, the statistics are much more regular in their upward course. If the New York clearing-house figures be entirely eliminated, the growth of the transactions for the country as a whole is even more marked.

It must be admitted, then, that corrected clearing-house figures show no decrease either relative or absolute. And, before

¹ The following table represents aggregate clearings for the whole country, both with and without the New York stock sales:

	Total Clearings Outside New York	Clearings for the Whole Country, including New York	
		Less $2\frac{1}{2}$ Times N. Y. Stock Sales	Including Stock Sales
1895.....	\$22,847,212,802	.....	.....
1894.....	20,787,815,368	.....	.....
1893.....	24,459,302,585	.....	.....
1892.....	24,737,923,831	.....	.....
1891.....	22,887,514,025	\$47,106,217,690	\$56,636,836,237
1890.....	22,370,482,393	50,884,929,520	60,829,090,002
1889.....	20,280,223,092	46,027,248,265	56,175,327,997
1888.....	18,441,607,346	40,692,837,010	49,541,634,867
1887.....	17,672,972,826	39,875,581,147	51,147,529,094
1886.....	15,616,891,606	34,579,565,718	49,293,721,218
1885.....	13,321,839,708	27,774,391,444	41,474,041,044
1884.....	13,214,113,613	29,351,234,783	44,199,984,783
1883.....	14,297,171,924	36,079,447,894	51,731,472,796
1882.....	13,962,286,579	41,655,018,020	60,878,241,610
1881.....	14,094,506,361	42,977,623,237	63,471,389,244
1880.....	11,375,400,000	32,942,133,088	49,989,848,223
1879.....	9,290,800,000	28,184,889,904	38,526,473,829
1878.....	7,955,100,000	22,495,597,355	27,813,771,307

leaving this part of the subject, we may briefly sum up what has been said as follows: Since clearings are records of business transactions merely, their variations cannot be taken as indicating similar variations in the relative extent to which credit is used. They may, however, be taken as roughly indicating changes in the absolute use of credit. It is contended by some that whereas wealth and exchanging are rapidly increasing, clearing-house figures do not show a proportional growth, hence it must be that a larger use is made of actual money. The answer to this argument is to be found in the fact that growth in wealth and the frequency of exchanges have been offset by coincident decrease in price and simplification in the machinery of business; while, as just indicated, clearings, when rightly modified by the elimination of the speculative element, show a large increase both relative and absolute.

II.

There are some other returns which merit consideration, since they are frequently used in support of the argument founded upon the supposed decrease in the clearings. In 1881, 1890 and 1892, the national banks were asked to analyze their receipts for specified dates, reporting the amount and percentage of each kind of money taken in over the counters. Besides these three experiments, there was, in 1894, another of a somewhat different sort. In that year, the national banks were asked to analyze and report the percentages of cash and credit instruments in the deposits of certain classes of retail dealers on a given date.

We may present the information obtained by the comptrollers in their three general experiments somewhat as follows:

RECEIPTS ITEMS	June 30, 1881. 1966 Banks		Sept. 17, 1881. 2132 Banks	
	Amount	Per Cent.	Amount	Per Cent.
Checks, drafts and bills	\$261,271,665	91.77	\$271,036,525	91.85
Clearing-house certificates	9,582,500	3.36	6,592,337	2.24
Paper money	11,554,747	4.06	13,026,570	4.36
Gold coin	1,864,105	.65	4,078,044	1.38
Silver coin	440,997	.16	500,301	.17
Total	\$284,714,017	100.	\$295,233,779	100.

RECEIPTS ITEMS	July 1, 1890. 3364 Banks		Sept. 17, 1890. 3474 Banks	
	Amount	Per Cent.	Amount	Per Cent.
Checks, drafts, etc.	\$189,408,708	44.90	\$168,803,766	51.58
Exchanges for clearing house.	194,290,203	46.06	126,596,873	38.68
Miscellaneous.	2,138,022	.50	135,562	.04
		91.46		90.30
Gold coin.	3,726,605	.89	3,702,772	1.13
Silver coin.	1,352,647	.32	1,399,991	.43
Gold treasury certificates.	6,427,973	1.52	6,159,305	1.88
Silver treasury certificates.	6,442,638	1.53	5,908,714	1.81
Legal tender notes.	7,881,786	1.87	7,665,666	2.34
National bank notes.	5,244,967	1.25	4,371,778	1.34
Legal tender certificates.	520,000	.12	105,000	.03
Clearing-house certificates.	4,391,177	1.04	2,428,834	.74
Total.	\$421,824,726	100.	\$327,278,251	100.

ITEMS	Sept. 15, 1892 3473 Banks		ITEMS	Amount	Per Cent.
	Amount	Per Cent.			
Checks, drafts, etc.	\$154,959,059	46.79	Silver treasury certificates.	\$6,537,015	1.97
Exchanges for clearing house.	141,873,266	42.83	Legal tender notes.	8,531,514	2.58
Miscellaneous.	586,367	.18	Treasury notes.	2,675,269	.81
		89.80	National bank notes	3,454,483	1.04
Gold coin.	2,907,017	.88	Legal tender certificates.	2,210,000	.67
Silver coin.	1,372,054	.41	Clearing-house certificates.	2,691,829	.81
Gold treasury certificates.	3,407,340	1.03	Total.	\$331,205,213	100.

These data may be briefly summarized in one table of comparative percentages :¹

ITEMS	1881		1890		1892
Gold. ....	.65	1.38	.89	1.13	.88
Silver. ....	.16	.17	.32	.43	.41
Paper.	4.06	4.36	6.29	7.40	8.10
Clearing-house certificates.	3.36	2.24	1.04	.74	.81
Total money.	8.23	8.15	8.54	9.70	10.20
Checks, drafts, etc.			44.90	51.58	46.79
Exchanges for clearing house.			46.06	38.68	42.83
Miscellaneous. ....			.50	.04	.18
Total substitutes.	91.77	91.85	91.46	90.30	89.80

¹ From JOURNAL OF POLITICAL ECONOMY, September 1895, p. 396.

There are, of course, two main questions suggested by returns of this character: (1) What is the value of these statistics in the comparison of different periods, and (2) what is their absolute worth as indicating the relative importance of cash and credit paper in everyday business?

In attempting to compare the receipts of the banks at different dates, it is of prime importance to avoid the error of those who take the apparently decreasing percentages of credit-instruments received as indicating a decrease in the use of such instruments in business. It is true, as may be seen from the table last given, that such a decrease at first sight seems to exist, but it cannot be taken as any indication of a growing disuse of credit paper. There are several circumstances by which the apparent decrease may be fully and adequately explained. In this case as in that of the clearings, it will be well to distinguish carefully between the returns for the trade centers—especially New York—and those representing the land as a whole. This may be done by quoting the percentages of credit-paper in total receipts thus:

CITIES	June 30, 1881	Sept. 17, 1881	July 1, 1890	Sept. 17, 1890	Sept. 15, 1892
New York.....	98.70	98.80	96.04	95.64	92.36
Chicago.....	92.00	90.30	95.11	95.06	94.52
Boston.....	96.50	93.70	94.14	90.70	93.11
Philadelphia.....	96.00	96.40	96.19	93.48	93.92
Cincinnati.....	88.00	90.00	92.34	93.50	94.64
Baltimore.....	92.90	93.90	89.89	89.16	82.46
Pittsburgh.....	90.40	86.20	92.37	90.00	90.02
Albany.....	93.80	96.50	92.97	96.60	95.33
Washington.....	60.00	45.80	65.27	32.65	66.65
New Orleans.....	89.80	80.20	90.09	82.83	87.16
Louisville.....	92.80	83.40	93.55	92.68	91.86
Cleveland.....	94.00	95.10	93.08	94.74	92.79
Detroit.....	87.50	93.50	87.31	95.61	91.82
Milwaukee.....	88.30	94.90	83.25	87.50	90.93
St. Louis.....	82.30	81.50	89.77	89.59	87.83
San Francisco.....	91.80	77.40	85.61	91.20	83.39
Reserve cities, except New York..	94.38	92.35	93.68	92.27	92.74
Cities other than reserve.....	81.72	81.74	84.09	82.91	84.91
Whole land.....	95.13	94.09	92.50	91.04	90.61
Whole land, except New York....	88.05	87.04	88.88	87.59	88.82

There are several important points which are revealed by a study of this table. First, the greatest decrease is seen to be in the returns for New York *and the cities financially and geographically closest to New York*, like Boston and Philadelphia. For the "reserve cities except New York" the decrease is questionable, while for the "cities other than reserve" we find not a decrease but an increase. For the country as a whole, with the New York figures eliminated, percentages remain about constant. This, by itself, would release us from the necessity of combating further the arguments of those who claim a decrease in the percentage of credit instruments used. As the falling off is observed in the New York figures alone, it would be only natural to attribute it to some purely local circumstance. And, if this were admitted, it would be perhaps no more than fair to assume that it could safely be neglected as not of sufficient importance to warrant a generalization. But, since the argument might be made that, as New York is still our chief financial center, any noteworthy fluctuation in the figures for that place is in itself to be regarded as of first class importance, it will be expedient to explain the reasons why the apparent decrease in the percentages for New York is not a real one. The fact that the stock sales ran up, in 1881 and the succeeding years, to a very abnormally high point has already been mentioned. It has also been observed that these dealings are entirely liquidated by checks, etc., so that when they become unusually great in amount the proportion of cash to credit instruments grows, *pari passu*, smaller.

The bearing of this circumstance upon the facts just presented may, perhaps, be set in an even clearer light by a simple illustration. Suppose a volume of receipts amounting to \$1000, of which 5 per cent. is in actual cash. Now, if we increase this volume from \$1000 to \$2000, the additional \$1000 being wholly composed of credit paper, the percentage of cash will be not 5 but $2\frac{1}{2}$ per cent. Thus, in the case of the receipts of New York banks, if habits regarding the use of money be about constant, a large advance in the number of speculative exchanges

will, since the increase consists entirely of credit-paper, lower the percentage of cash received. It would therefore be absurd to draw inferences solely from the relative percentages of cash and credit paper received by banks at different dates, unless we also studied the character of the receipts and compared only such parts of them as were strictly comparable. The importance which must be allowed to this consideration is appreciated when we recollect that the year 1881 was characterized by a phenomenally active stock market, speculative operations being estimated at three-sevenths of the total clearings, whereas the year 1890 was a time of depression, owing to the Baring failure and other circumstances, while the returns for 1892 are vitiated so far as comparison with 1881 goes, by the entire elimination of the stock clearings. This statement will hold for those places like New York and the financially related cities, such as Boston and Philadelphia, where the stock market was active or depressed (as the case might be), in the years referred to, and where the clearings arising from speculative transfers were included in the regular bank clearings. In other large cities, no decrease is noted. Thus, in the case of Chicago, the percentage was 92 in 1881, 95 in 1890, and 94 in 1892. The same is true of Cincinnati and other important places.

There is another important circumstance bearing upon the percentage of cash in the banks' receipts. This is the fact of the retirement of the national bank notes. In 1881, the withdrawal of the notes had not begun. Only a little while later the banks began the operation of redemption. During nearly every year thereafter, a considerable quantity of the notes was retired. Thus, a larger amount of other kinds of money—treasury notes, etc.—was brought into use. This was particularly the case in 1890, and it is to the operations growing out of the redemption of national bank notes that we may, in part, attribute the apparent decrease in the use of credit money as seen in the figures for New York and some other cities in 1890. A study of the returns given by the comptroller shows that the decrease in the percentage of checks and drafts received was about compensated

by the increase in the percentage of paper money.¹ Again, the receipts of the banks in 1881 were largely inflated in New York and elsewhere by the practice of over-certifying checks.² This also contributed unfairly to enlarge the percentage of checks and drafts received at that time as compared with the percentage of cash.

In view of all this, it seems hardly fair to argue, as has recently been done,³ that the apparent decrease in the percentages for a few principal cities proves that a great change is taking place in the habits of the business community with reference to the use of credit paper. The returns as just quoted certainly do not point to any such movement.

It may also be worth while to consider the reports made by the banks at the request of the comptroller in 1894. The experiment of 1894 was an effort to gain an idea of the relative parts played by cash and credit in retail trade. The national banks were requested to analyze for a certain date the deposits of five specified classes of retail dealers. These classes were selected on the basis of the reports of the Commissioner of Labor for 1890 and 1891 as those whose receipts would represent about two-thirds of the expenditure of each individual for all grades of incomes. Returns were sent by 2465 out of about

¹ This has been commented upon in the JOURNAL OF POLITICAL ECONOMY for March 1893, as follows: "The perceptible lowering in the percentage of the use of checks and drafts for the whole country is due to a special cause affecting the figures for New York city, where a diminution in the use of checks and drafts is offset by an increase in the use of paper currency. This is explained by the operations consequent upon the retirement of national bank notes, which bring more paper money into use during the process of reduction, and this effect is of course most evident in the figures of the New York city banks."—Pp. 263-4.

² Of this Comptroller Knox said, in 1882 (*Report of the Comptroller of the Currency*, 1882, p. xxv): "The practice [over-certification] has . . . greatly increased during the last three years, and the returns of the banks for October 3, the date of their last statement, discloses the fact that the amount of the certificates or acceptances made on that day was nearly one-third greater than for a corresponding date in the year previous, and that the amount of acceptances for stock-brokers of nine national banks on that day was more than nine times the aggregate capital stock of those banks."

³ FISHER: "Money and Credit Paper in the Modern Market," JOURNAL OF POLITICAL ECONOMY, September 1895, pp. 409 and 413.

3700 national banks for "the settling day nearest the 30th of June." Prior to this experiment, it had been tacitly understood, in all discussions of the subject, that credit instruments played but a minor rôle in retail trade. The outcome of the investigation was, one would think, such as completely to surprise those who had not previously suspected the extent to which the check system was invading even retail trade—the domain hitherto exclusively assigned to cash. It was found that about 54 per cent. of retail payments were, judging from the character of the deposits, performed by credit paper. This ought to have convinced the most sceptical. Yet the returns have been used somewhat absurdly to prove that the use of credit instruments is decreasing, and is now about equal to the use of cash. It is argued that, whereas it has all along been stated that credit performed about 92 per cent. of all our exchanges, this investigation has shown the percentage to be much less in certain "important fields," and that it will be quite safe to assume that the high percentage of credit devices in wholesale trade is overbalanced by the exclusive use of cash among those who, in retail transactions, have no banking connections. This is a clear *a priori* assumption.

But it is worth while to say a word in regard to the relative importance of the investigation of 1894, since it is a misapprehension of this that has led to such arguments as the one just outlined. The great fact overlooked by certain writers is that the retail deposits aggregated only \$6,000,000. True, they comprised returns from less than three-fourths of the national banks, but if allowance be made, at the same rate, for the banks not included, we should have not more than \$10,000,000 for the whole number. This leaves out of account the non-national banks of all sorts. If we suppose that they received, on the specified date, a sum equal to that deposited with the national banks, we shall get but \$20,000,000. This is a high estimate of the retailers' deposits with the state and private banks and loan and trust companies. But the investigation was planned to cover only 67 per cent. of the expenditures of the people. We

should, therefore, have a grand total of \$30,000,000 as the aggregate retail expenditure of all classes daily. It has been shown, however, by the general experiments of the comptroller already mentioned, that the total daily receipts of all the banks may be estimated at \$550,000,000. Accepting this estimate, we find that the \$30,000,000 received by all sorts of retail dealers formed but about one-eighteenth of the total volume of bank receipts. Thus, the importance of the percentages of credit-paper and cash in retail trade, as compared with the same returns from wholesale transactions, is small. It is quite illogical to put forward as a corollary from the investigation of 1894 the statement that "the great majority of the people are without (banking) connections, and their great numerical predominance gives them much weight, probably enough to bring the quota of cash transactions for the whole country to about one-half,"¹ when we have just seen that the dealers with whom this "great majority of the people" spend their incomes are able to deposit each day probably much less than one-eighteenth of the total bank receipts.

Again, it is argued from the results of the investigation of 1894 that, in retail trade at least, the more advanced commercial states and cities do by no means show the most extensive use of credit paper. The inference drawn is that advancement in wealth and trade does not at all imply a similar advance in the extent to which credit instruments are used. In support of this position, reference is made to the fact that the largest percentage of credit instruments is not found in the most populous cities but in those possessing from 100,000 to 200,000 inhabitants, while next in rank come those of from 10,000 to 25,000 inhabitants. Again, it is noted that, in the wealthier and commercially most progressive states, the percentage of credit instruments received is considerably below, while in poorer and more backward regions it is much above, the average.

All of these circumstances may readily be explained by

¹"Money and Credit Paper in the Modern Market," JOURNAL OF POLITICAL ECONOMY, September 1895, p. 407.

reference to actual conditions. The percentages which are below the average are, it is true, generally found in those states which are most highly developed commercially. Yet this is not at all anomalous when we consider that it is precisely in these states that the greatest banking facilities are furnished, so that it is quite within the reach of even the smallest dealers to keep an account. Thus, Pennsylvania falls considerably below the average, her percentage for retail trade being but 53.3 as against an average of 57.7, while the receipts of her banks are far larger than those of any other state included in the investigation, amounting to \$1,030,071 or more than one-sixth of the total. On the other hand, the Indian Territory shows a percentage of 61.9 while its total receipts were but \$2,429. Yet this surely could not be taken as indicating a larger use of credit paper in the Indian Territory than in Pennsylvania.¹ Again, the smaller percentage of credit paper returned for the most populous cities is to be explained not only by the fact that has just been referred to, but also by the circumstance that the period of credit there allowed is much shorter, while on the other hand the offsetting of accounts against one another is not nearly so common as in small towns and villages. This leads to a somewhat greater use of cash in retail transactions in the cities.

It will be well, too, in this connection to allude to the passing of the small retailer and his supplanting by the department store in the larger cities. This again leads to a more extended employment of cash. Yet this cannot be taken as a change in habits as to the use of credit instruments. It merely implies an alteration in the mode of carrying on industry which, for the time, results in slightly greater need of cash. It will not be worth while to go farther with our exegesis of these figures. Enough has been said to show that for the arguments to prove the

¹ All this will be better understood by a study of a table given in the report of the Comptroller upon the investigation of 1894, and also in the *JOURNAL OF POLITICAL ECONOMY*, March 1895, p. 205, where the returns for the different states are summed up and the absolute amounts of checks and cash received as well as the percentages, are stated. It would be misleading to argue from the bare percentages without reference to the absolute amount of checks and cash deposited.

decrease in the use of credit devices, which have been set forth above, little support can be found in the Comptroller's investigation of 1894. In short, about all that can be said of this experiment is that it has shown a truly remarkable invasion of the field of retail trade by credit paper.

It is now necessary to meet the question: Can the receipts of the banks be taken as indicating the parts played by credit paper and cash in the business of these institutions themselves and in that of their depositors? If we neglect the unimportant element of checks presented for cashing at the banks on which they are drawn, we have a right to say that we know pretty accurately the proportion of cash to credit in the business of the (national) banks with their depositors. With regard to the regular business dealings of the depositors it is of course impossible to give so definite an answer. It is argued that, whereas the checks deposited by a business man are quite likely to be all the checks received by him since making his last deposit, this does not hold true of the cash deposited by him, since any payments he may have had to make in the interval will have more likely been met by the transfer of cash than by the transfer of a check. This is plausible and would have some weight were it not for two things: first, it is supposed that business men will draw no new checks, and second, it could not in any case hold good outside the field of retail trade. No wholesale house pays obligations of any consequence whatever in cash, and in many cases it is a fixed principle always to use checks since these constitute receipts, when cancelled and returned. It is only in retail trade that the principle could be supposed to be operative, and even here dealers prefer to use checks, when possible, for the same reason as in the case of wholesalers. At all events, as already seen, the total of retailers' deposits cannot be placed above \$30,000,000, and thus the principle must be extremely limited in its field of operation. In the case of the large speculative transfers, business is, we know, always done by check. Thus, so far as this point alone is concerned, it seems no more than fair to regard the percentages of cash and credit paper in the

receipts of the banks as representative of the relative importance in ordinary wholesale trade of these two means of liquidation in the business of their depositors. Some reduction, no doubt, must be made from the percentage of credit paper but it can only be of slight importance. It has been argued that the percentages of cash and credit paper in the receipts of the banks cannot be taken as at all representative of the relative parts played by these different media in the business of the country as a whole since it is "exactly . . . among . . . depositors [at the national banks] that one ought to look for the highest proportion of credit instruments. . . . It would be just as correct a proceeding to compute the volume of water in a lake by multiplying the surface area into the greatest depth."¹ This is, in another form, the same argument which we have combated elsewhere. The reply is found in the fact that the depositors at the banks do not represent a "field of industry" but are drawn from all fields and typify the general business of the country, and in the fact that, as shown by the last investigation, retail payments are relatively small and, in any case, represent the expenditure of those classes especially which have no banking connections.

There are, of course, many corrections and modifications which, if applied to the figures for the receipts of credit paper by the banks, would lessen their importance. Of these the fact that many drafts are counted twice may be taken as an example. And when it is remembered that, in the case of the great volume of domestic exchange—amounting to about \$20,000,000,000 annually—many drafts are no doubt repeated in the returns, it is seen that there may be an important error in taking the statistics as we find them. But, on the other hand, there are various tendencies to error in the opposite direction, as in the case of certified checks which often pass from hand to hand like

¹"Money and Credit Paper in the Modern Market," *loc. cit.*, p. 898.

actual money,¹ as well as in that of ordinary transfers of checks by endorsements. In both these cases many more transfers are effected by check than would appear from the statistics. On the whole, then, we may, in default of more evidence, take the percentages as they stand.

So far, we have concerned ourselves wholly with the credit side of the problem. But, if it be desired to know the relative amount of exchanges performed by cash, we are more than ever unable to make definite statements. Nothing is known and, with present means, nothing can be known, regarding the amount of exchanges effected by money. As nothing is known concerning this factor, and since, as has been shown, the credit side of the proportion between goods and means of exchange is also indeterminate, it is absurd to try to establish a relation between them. Yet a recent writer, after elaborately calculating the aggregate annual receipts of credit paper at all the banks of the land, and identifying this aggregate with the amount of credit exchanges performed, reasons as follows: "We know that at the time for which the previous statistics and estimates were given, there was in the active circulation of our country, that is, outside of the treasury and outside of the banks, about an even billion dollars of money. It can be noted that if this money changes

¹ The extent to which certified checks were used in New York alone 1875-1882 may be understood from the following table (Comptroller's Report, p. xxviii):

DATE	No. of banks	Capital.	Certified checks
June 30, 1875.....	48	68,500,000	41,223,840
Oct. 1, 1875.....	48	68,500,000	28,049,100
June 30, 1876.....	47	66,400,000	36,983,391
Oct. 2, 1876.....	44	65,850,000	38,725,100
June 22, 1877.....	47	57,400,000	29,450,134
Oct. 1, 1877.....	47	57,400,000	29,199,900
June 29, 1878.....	46	55,600,000	42,576,240
Oct. 1, 1878.....	46	53,486,300	40,296,100
June 14, 1879.....	47	50,750,000	44,465,002
Oct. 2, 1879.....	46	48,750,000	58,827,717
June 11, 1880.....	46	50,450,000	75,737,938
Oct. 1, 1880.....	45	49,900,000	61,791,510
June 30, 1881.....	48	51,150,000	78,142,179
Oct. 1, 1881.....	48	51,150,000	97,522,120
July 1, 1882.....	50	51,500,000	65,101,191
Oct. 3, 1882.....	50	51,650,000	137,316,300

hands, on the average, three times a week, the amount of the cash transactions equals the great total which was assigned to credit paper. If the movement is more rapid, cash predominates; if less rapid, credit has the wider range."¹ This is all the evidence adduced to show what may be the relative importance of money in effecting exchanges. Yet, a few lines farther on, the same writer concludes, "The calculations of this paper are *submitted as evidence that the cash and credit exchange of our country, instead of standing as 1 to 10, stand in the ratio of something like 1 to 1.*" And this although he had previously urged that "it would be rash to assert that one stick is longer than another until we know something about the length of both."² A bare statement that *if* money changes hands three times a week the amounts of exchange performed by money and credit devices will be equal, recalls the practice of school-boys who solve arithmetical problems by working backward from the answer. It certainly cannot be taken as "evidence" to prove anything whatever.

IV.

So far we have mainly devoted our attention to the question whether or not the opinion that the use of credit devices is much less extended than is ordinarily supposed and is, furthermore, on the decline, is justified. As a result of this study, it has been concluded that—far from decreasing—it is rapidly growing, and that as yet no evidence has been introduced to show that it is losing in importance or that it is of less importance relatively to cash than is usually supposed.

It certainly is clear that it is not the *absolute amount* of credit devices used at a given moment which indicates the relative preference of the business community for cash or checks as a means of liquidating debts. Hence, as has been seen, an argument for the decreasing importance of credit instruments, which rests upon such a foundation as a comparison of the clearing-house figures for different dates, can hardly stand. Even if it could be shown that, *cæteris paribus*, an actual decrease in the

¹ FISHER, "Money and Credit Paper in the Modern Market," *loc. cit.*, p. 405.

² *Ibid.*

amount of exchanges effected by credit instruments had been observed, the only safe conclusion to be drawn would be that a decrease in the amount of aggregate exchange to be effected had taken place. As has before been insisted, nothing is, and little can be, known of the amount of work performed by money, save that all the available evidence at present points clearly to the conclusion that it is, compared to that effected by credit, extremely small.

In a similar way, variations in the proportion of cash to credit devices used in exchanging goods at different dates cannot be taken as an index to variations in the habits of the business community, with reference to the use of one or the other medium of exchange, unless the exchanges under consideration are of characters precisely analogous one to another. Such variations, taken by themselves, would be far more likely to indicate merely a change in the volume of business done, since the demand for cash is really about constant, under a given set of general circumstances, and a change in the proportion of the cash used to the credit might be brought about by a change in the volume of business, entailing as this must, a decrease or increase of credit devices in existence, and having little influence on the cash.

The burden of proof, then, rests upon those who maintain that credit deposits are playing a more and more subsidiary rôle in business. They must show, if they wish to make out a case, not merely that the actual quantity of credit exchanges performed at a given moment is less, or that the proportion of cash is greater, but that this proportion is greater *per unit of exchanges of homogeneous character effected*. And it is the contention of the present paper that no evidence pointing to such a conclusion has been brought forward, but that rather all the facts bearing upon the question as well as the testimonies of practical men conversant with the real state of affairs lead to the belief that credit deposits are a factor in our medium of exchange which is not only overwhelmingly disproportionate in importance to other elements, but is daily becoming more so.

These things being admitted, it remains to say a few words in regard to the way in which the use of credit deposits as currency bears upon the quantity theory. The most universally accepted formulation of the quantity theory states that, whereas the value of money, like that of all other commodities, is regulated by demand and supply, the demand for money being all goods which must be exchanged through the agency of money, prices are thus strictly regulated by the quantity of money in existence. According to these reasoners, all goods exchanged by any other means whatever, exclusive of actual money, constitute no demand for money and, consequently, cannot be regarded as having any effect upon price. The most prominent of the supporters of this notion is President Walker who has avowed his belief thus: "Many . . . goods may conveniently be directly exchanged against each other in barter, or indirectly through the intervention of commercial and financial credit, without the use of money. Such goods do not constitute a factor in the demand for money."¹

It would be impossible to enter, at this point, upon a discussion of the question whether or not President Walker's position, as just outlined, is tenable; since such a discussion would reopen the whole controversy over the theory of prices. The price-controversy is as yet far from a satisfactory settlement. There are many who would not be prepared to admit that, even were all goods regularly exchanged by the use of actual money, their prices would be solely dependent upon the quantity of such money, even under the supposition of a constant demand. Even if, then, it could be shown that credit devices are of slight account as a means of exchange, this would not necessarily weaken the position of those who dissent from the quantity theory. On the other hand, demonstration that credit instruments play a much larger part in effecting exchanges than has even been supposed would not weaken the position taken by

¹ *Quarterly Journal of Economics*, July 1895, p. 373. And again (*Money*, p. 64), "Just so far as sales for money are substituted for barter transactions, the demand for money rises, and the lower prices which result are carried over in estimation to the commodities directly exchanged or remaining in store."

President Walker since, in his view, it would still be the quantity of money used in exchanging a portion of the supply of goods, however small this portion might be, that would determine the prices of the whole supply.

The bearing of the use of credit devices upon the quantity theory, in the strict sense of the term, is thus, from one point of view, small. It is rather in studying the practical inferences which have been drawn from the quantity theory as just stated that an investigation of the comparative part played by credit instruments in exchanging goods is of interest and importance. The adherents of the quantity theory are at one in demanding an increase in the volume of our circulating medium. At first sight, such a position seems strangely out of harmony with the theory itself. It is plain that, the greater the amount of the goods which are exchanged without the intervention of money and which consequently "do not constitute a factor in the demand for money," the smaller the amount of goods which must be exchanged by means of money, and consequently the greater the probability that the present volume of circulating medium will be adequate, or, as it is currently phrased, "large enough for the needs of trade." It is clear, then, that an admission of the usual claims concerning the great extent to which credit devices are used will discountenance any demand for an increase in the quantity of circulating medium, based on the quantity theory alone. To afford any basis for such practical suggestions it is, therefore, incumbent upon those who hold this theory either to show that credit instruments have not, to any considerable degree, usurped the place of cash, or to prove clearly that such a usurpation has been more than counterbalanced by an increase in the demand for a medium of exchange. Attempts to demonstrate such an increase in demand have already been shown to be futile. Indeed, it should be sufficient, in reply to arguments based on this ground, to point to the fact that but one-sixth of our credit deposits are daily checked upon. The only remaining argument is that which attempts to minimize the extent to which credit devices are used.

Those who, in accordance with the logical necessities of their

position as just outlined, have tried to disprove the very extended use of credit instruments, have also sought to make their arguments, on the question of the relative extent to which credit devices and money are used, serve as a reply to criticisms of the quantity theory. But it has just been shown that the use of credit instruments as a means of exchange affords no support to such criticisms. The attempt to adopt the line of reply just indicated, therefore, proceeds upon a misapprehension of the position taken by critics who do not accept the quantity theory. Categorical statements have recently been made to the effect that criticisms upon the quantity theory may be reduced to one of two forms: (a) the argument that the quantity theory has become invalid owing to the greatly decreased use of money, and (b) the statement that price will, therefore, depend chiefly upon the quantity of checks and drafts in use.¹

It will, however readily appear from what has been said a moment ago that the first of these arguments is quite irrelevant to the quantity theory as most recently stated; it forms no part of the criticisms upon the theory as such. The second contains a palpable selfcontradiction, since it implies a belief in a more extended form of the quantity theory itself. Critics of the quantity theory, moreover, have always regarded credit instruments as the result of transactions, and conterminous with them. The *quantity* of checks and drafts in use, consequently, could not be regarded as even remotely affecting price. But this false attitude towards their critics has made quantity theorists more than ever alive to the necessity of minimizing the importance of credit devices, if their point of view is to be sustained. So far, however, the efforts to prove that the use of credit devices is much smaller than has been supposed have been unsatisfactory. Nor is there the least ground for believing that the proportion of exchanges performed by checks and drafts is decreasing. Judged by the tests applied in the present paper, both these inferences seem hasty; and the evidence offered in their support inconclusive.

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¹See FISHER, *loc. cit.*, pp. 392, 393.